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NextGen: A Review of the RTCA Mid-Term Implementation Task Force Report
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Introduction

Chairman Costello, Ranking Member Petri, distinguished members of the Subcommittee; my name is Jens Hennig and I am the Vice President of Operations for the General Aviation Manufacturers Association (GAMA). GAMA represents over sixty companies who are the world's leading manufacturers of general aviation airplanes, engines, NextGen avionics, and components. Our member companies also operate airplane fleets, airport fixed-based operations, pilot training and maintenance facilities worldwide. On behalf of our members, I appreciate your convening this hearing to examine the RTCA Mid-term Implementation Task Force report ("Task Force"). This hearing, combined with other subcommittee hearings earlier this year, have contribute greatly to a better understanding of where NextGen stands and where it needs to go if we are to achieve its economic and environmental benefits.

State of the General Aviation Industry

As the committee knows, general aviation (GA) is an essential part of our transportation system that is especially critical for individuals and businesses that need to travel and move goods quickly and efficiently in today's just-in-time environment. General aviation is also an important contributor to the U.S. economy, supporting over 1.2 million jobs, providing $150 billion[1] in economic activity and, in 2008, generating over $5.9 billion[2] in exports of domestically manufactured airplanes. We are one of the few remaining manufacturing industries that still provide a significant trade surplus for the United States.

Our industry, like others, is struggling in today's difficult economic situation. GAMA member companies have experienced more than 19,000 layoffs since last September

[1] General Aviation Contribution to the US Economy, Merge Global 2006.
[2] 2008 General Aviation Statistical Databook and Industry Outlook, GAMA 2009.

which is almost 14% of the GAMA companies' work force. We are deeply saddened by this.

Despite these tough times, our member companies continue to look to the future by investing in new products to help stimulate future economic growth and employment in general aviation manufacturing. I just returned from the business aviation convention in Orlando last week where GAMA companies announced the availability of new capabilities on their aircraft like Required Navigation Performance (RNP), data link capability, and ADS-B Out for new airplanes and retrofit solutions for the legacy fleet. These announcements are consistent with the history of the general aviation industry pushing the boundaries of technology.

Overall Comments about RTCA Task Force

For GAMA, there are two overarching points to be made about the Task Force. The first is that the Task Force clearly echoes the sentiment of industry that we have reached a point where more focus must be placed on delivery than planning. As a guiding principle we worked under the framework that **"It's about implementation..."**

The focus on implementation makes sense because when we look to foundational capabilities for navigation such as performance based navigation (RNP and RNAV) the equipment is mature and training is being provided. The significant emphasis placed by the Task Force on how to broaden the use of RNP is appropriate. We need to enable the aviation industry to take better advantage of these capabilities and to make certain the broad spectrum of industry sees the benefits of equipage and invests accordingly. FAA must develop the needed procedures and guidance so the promise of these investments is realized.

We also believe this focus on implementation is beneficial as we move forward more fully into the NextGen future. As the RTCA Task Force report emphasizes, equipage will only take place when users are confident about the potential for benefits and that there is a high certainty that these benefits will be achieved. Success in implementation now will mean more user confidence as we implement NextGen.

Secondly, providing a forum, like the RTCA NextGen Mid-Term Implementation Task Force to enable industry's involvement in air traffic control modernization is imperative for its success in the short- and long-run. The Task Force was a positive activity that enabled industry and the FAA to provide focus on the specific capabilities that can be deployed with equipment currently onboard the air transport and general aviation fleet.

But just as important, as the Task Force Chairman, Mr. Steve Dickson noted in the report, it is essential that this spirit of cooperation continues. Mr. Dickson stated that:

> "User community stakeholders must be active participants in the planning, implementation and measurement of these recommendations. This should be

> accomplished through the ATMAC[3] and its standing working groups, using Task Force leadership and other resources as needed for consultation and as subject matter experts."

When we look beyond the horizon of the Task Force to the implementation of the full concept of operation for NextGen the role of industry in its planning, research, and development remains essential. Congress and the FAA must continue to provide mechanisms for industry participation if these RTCA recommendations are to be successfully implemented but also to ensure the achievement of the more ambitious NextGen activities.

I will now turn in the rest of my testimony to some of the key recommendations of the RTCA report from a GAMA perspective.

Streamlining Processes for Avionics Certification and Operational Approvals

As the RTCA report demonstrates the role of the FAA Aviation Safety Organization (AVS) in air traffic control modernization cannot be stressed enough. The traditional process of modernizing our airspace was centered on ground equipment infrastructure. For NextGen the term "aircraft centric" is often used and it attempts to communicate this paradigm shift of moving part of the air traffic control infrastructure onto the aircraft. This greater reliance on aircraft avionics and other onboard equipment makes an efficient process for avionics certification and FAA operational approvals even more important. AVS becomes essential and we are pleased that AVS Associate Administrator Gilligan has recognized the importance of process improvement in this area.

Streamlining avionics certification: Significant work has been done over the past several decades to streamline equipment certification, some of which were actions from a previous RTCA Task Force's recommendations. However, more needs to be done for these improvements to be fully realized due to differing approaches within the AVS organization.

One example involves the introduction of new equipment is Wide Area Augmentation System (WAAS) Global Positioning System (GPS) which provides improved instrument approach capability at airports that have no ground based infrastructure such as ILS, VOR or NDB transmitters. Even though the initial certification of WAAS GPS equipment installation on a particular type of aircraft has already been issued by FAA Aircraft Certification Service, FAA Flight Standards Offices have been approaching each additional WAAS equipment installation in similar types of aircraft as almost a new certification project. In essence, the new application for installation approval becomes grounds for recertifying the equipment again as FAA Flight Standards personnel overseeing the project asks for project specific issue papers and special conditions related to the initial equipment certification. If the goal is to enable new technologies, this

[3] FAA Air Traffic Management Advisory Committee (ATMAC)

burdensome and inefficient process for installations is counter to that goal. As the RTCA report stresses, better coordination, clearly defined roles, and accountability between AVS's different offices must be put in place.

Today the FAA is working to streamline WAAS equipment approvals by putting in place the appropriate policies and procedures. Going forward, FAA and industry cannot afford to revisit the WAAS GPS experience if we are to achieve efficient and timely NextGen certification.

Streamlining operational approvals: During the past five years GAMA, in partnership with the FAA and the National Business Aviation Association (NBAA), have cooperated to build momentum behind use of RNP-SAAAR[4] by the general aviation industry.

We have made progress over the past few years with procedures at some key business aviation airports identified by operators as a priority for RNP-SAAAR approaches like DeKalb-Peachtree Airport. In addition, manufacturers like Gulfstream Aerospace Corporation and Dassault Falcon Jet have worked with suppliers like Honeywell and FlightSafety International to develop the equipment and training; but one hurdle remains: the complexity of the approval process for RNP-SAAAR. So far, only four general aviation operators have obtained RNP-SAAAR capability with a handful in the process. We have made some progress in reducing the time to obtain the approval from 18-24 months to 4-6 months, but it remains a complex and involved process.

The Task Force takes an important step forward by identifying opportunities that focus FAA resources on essential safety functions and reduce unneeded red tape. These recommendations, if implemented, will encourage operators to adopt new technologies and capabilities as the certainty of benefits rise relative to the cost of adoption.

I cannot stress enough how important these changes are especially since there are multiple operational approvals needed. To obtain unrestricted access to airspace today an operator has to apply for at least seven different Letters of Authorization (LOA)[5] including those for RNP-SAAAR previously mentioned. In total, each aircraft submission contains approximately 360 pages of documentation for new delivery aircraft. One of our member companies has determined that it would take an FAA Flight Standards Districts Office (FSDO) approximately 38 man-hours per operator and aircraft to review and approve the submitted request.

This time does not account for the work on the industry side. Last year, GAMA members delivered over 1,300 business jets and about 500 turboprop powered airplanes each of which may be subject to some or all for these approvals. Avoiding proliferation of these

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[4] Required Navigation Performance (RNP) Special Aircraft and Aircrew Authorization Required (SAAAR)
[5] LOA for Reduced Vertical Separation Minimum (RVSM), North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS), RNP-10/-4, B-RNAV (RNP-1), RNAV 1 / RNAV 2 (SIDs, STARs), Q and T routes, RNP-AR (-SAAAR approaches), ADS-C, and CPDLC.

LOA, while streamlining the surrounding process, will be essential to the practical implementation of these capabilities across both the new and legacy fleet. Our customers and member companies are concerned that as we continue to move toward NextGen with its cutting edge capabilities, the problem of LOAs will become more acute as additional specific approvals proliferate.

To avoid this, the Task Force report recommends that RNAV and RNP approval requests be combined into a single comprehensive application package with the widest applicability possible. The Task Force provides a proposed framework for this application package.[6]

The Task Force also recommends that a clear path be created for aircraft manufacturers to provide documentation for the aircraft portion of the approval.[7] This will enable a portion of the applications that already has been subject to FAA review through the manufacturer's approval to be "fast-tracked" during the operations approval process. This has the benefit of focusing FAA oversight appropriately on the operator's manuals and training.

I have gone into some detail on this because for manufacturers our ability to certify and put into operation new aeronautical products and capabilities more effectively, connects directly to our ability to sell products, create and maintain jobs, and remain competitive in the global marketplace.

FAA resources: As this committee knows, GAMA has long advocated for appropriate levels of FAA resources for aircraft, avionics, and product certification. GAMA has welcomed the attention of this committee in the past about this issue.

As we go forward with NextGen, we expect an increase of several orders of magnitude in applications for certification of new equipment design and installations on aircraft. Today, the FAA Aircraft Certification Service has instituted a sequencing policy where all industry applications for new certification projects are evaluated to determine which can start and which will be delayed until FAA resources are available. While the certification process utilizes expert designees and delegated organizations to the maximum extent possible, the FAA simply does not have enough staff to maintain the necessary oversight and process the amount of new certification work expected to implement NextGen. Ensuring that FAA has an adequate level of engineering staffing resources to support certification activity as well as streamlined FAA oversight and certification processes will be necessary for timely NextGen implementation.

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[6] Appendix L contains a proposed RNAV/RNP approval request application package.
[7] Advisory Circular 90-101 Appendix 2

Role of Government in Creating Equipment Incentives

During the past several years GAMA has discussed the important role of equipment incentives to stimulate early equipage within the operator community. We see equipment incentives as a mechanism through which capacity and efficiency system benefits can be achieved at earlier dates. These incentives become important when benefits reside not with the individual operator but with the overall system, another operator, or the U.S. government.

We also believe government support for equipage is appropriate as the radar surveillance infrastructure of the past is increasingly moved to the aircraft. We all must consider whether it matters in terms of government funding if the infrastructure funded is built on the ground or in the air.

We are pleased to see the RTCA Task Force endorsing incentives for equipage as one of its "overarching recommendations". The Task Force identifies various paths through which incentives can be provided including: providing financial incentives; providing a timely, unambiguous set of processes, and establishing areas in the NAS, when appropriate, where systems users who have aircraft with higher aircraft performance and capability get higher levels of service. I focus my remarks in this area on financial incentives.

Some technologies that are identified as "NextGen" have already quickly made their way onto air transport and general aviation aircraft. The story around performance based navigation is a positive one as the committee learned from its recent hearing.

WAAS has really been a success story in our joint efforts of modernizing the air traffic control system. As of September 2009, over 1,800 WAAS approaches have been deployed and our members have delivered over 40,000 receivers for aircraft. It is a successful program where operators are buying equipment because of the benefits achieved without the need for a regulatory mandate. WAAS is truly one of the key first steps in our transition to achieving a satellite based National Airspace System.

For some NextGen capabilities, the business case is not necessarily easy to identify for our customers. The Task Force was given specific direction to look at achieving "a positive business case to support the requisite and timely equipage"[8] for NextGen capabilities in the mid-term. Predictably, capabilities enabled by equipment already onboard a large portion of the fleet faired better in the analysis than equipment that will have to be purchased or where the benefit was on the system, at least initially, or where benefits would not accrue until everyone were equipped.

ASD-B Out is an often cited example. For ADS-B Out some benefits have been identified for air transport and general aviation operators including improved search and

[8] RTCA Task Force, Terms of Reference, Appendix D.

rescue and surveillance in airspace currently not covered by radar. However, our customers are not currently equipping because they cannot make the business case work at this time.

During the past several months, FAA Administrator Randy Babbitt has talked about "pockets of interest" within the Administration to explore equipment financing. The RTCA Task Force identifies various mechanisms for financial incentives for equipage including direct subsidies, no or low interest loans, and tax credits. The House Transportation-HUD bill makes NextGen equipage eligible for investment by an infrastructure bank subject to an authorization. GAMA stands ready to work with the Administration, Congress and other industry stakeholders to develop opportunities to further NextGen through financial incentives for equipage.

Other Parts of RTCA Task Force Important to General Aviation

GAMA is pleased to see enhanced access to the National Airspace System (NAS) at non-OEP airport as one of the priority recommendations of the Task Force.

> *"Improve access to and services provided at non-OEP airports and to low altitude, non-radar airspace by implementing more precision-based approaches and departures, along with the expansion of surveillance services to areas not currently under radar surveillance." (Recommendation 5)*

The technology that GAMA sees achieving this needed surveillance capability identified in the report is Automatic Dependent Surveillance – Broadcast ("ADS-B")[9] as well as the deployment of Wide-Area Multilateration.

The 794 ground stations being deployed around the United States as part of the ADS-B ground infrastructure will meet and exceed surveillance beyond the current coverage provided by radar. This is the case in both off shore operations like the Gulf of Mexico and off the east coast of the United States, but also in terrain challenged environments like Colorado.

It was exciting to see on September 22, FAA announcing initial operations of Wide-Area Multilateration (WAM) commencing over Colorado as a surveillance system. The FAA and the Colorado Department of Transportation shared the cost of the deployment of WAM which allows air traffic controllers to track aircraft not covered by radar in remote, mountainous regions. A similar program is underway in Juneau, Alaska. Additionally, the Senate Commerce Committee-passed FAA reauthorization bill encourages additional state programs.

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[9] To resolve access problems, the Task Force recommends that the following operational capabilities be implemented: Low Altitude Non-Radar: Extended radar-like services to low-altitude airspace without radar surveillance (28) as discussed in Executive Summary.

The new system is comprised of a network of sensors deployed in remote areas. The sensors send out signals that are received and sent back by aircraft transponders. No other aircraft equipment is required. System computers are able to determine the precise location of aircraft by triangulating the time and distance measurements of those signals.

The FAA noted in its press-release that WAM "is being used in the near term while the FAA rolls out Automatic Dependent Surveillance–Broadcast (ADS-B), the satellite-based surveillance system that will be fully deployed nationwide by 2013. *WAM will then serve as a backup to ADS-B in the event of a GPS outage and provide an additional source of traffic broadcast to properly equipped aircraft [emphasis added.]*"[10]

Recognition of Progress in International Harmonization

While the Task Force report does not address the work across the Atlantic in the SESAR[11] program, as manufacturers we believe it is essential that U.S., European and other international ATC modernization efforts move forward toward harmonized equipment requirements as best possible.

GAMA applauds EU Transport Ministers for their decision earlier this month to authorize the European Commission to formally open negotiations with the United States on a memorandum of cooperation in civil aviation research and development in the field of Air Traffic Management (ATM) modernization. These negotiations will help ensure interoperability between SESAR and NextGen.

The emphasis on interoperability is crucial to ensure the maximum effectiveness of ATM modernization on both sides of the Atlantic. We commend the Commission and the FAA in this important initiative.

Conclusion

The Task Force brought together industry and the FAA to identify what can be implemented today and GAMA is pleased to endorse its recommendations. As manufacturers who are working actively to promote the safety, capacity, economic, and environmental benefits resulting from NextGen, we are especially pleased to see the recommendations about the streamlining of operational approvals and certification as well as equipment certification making their way into the final report.

We also believe implementing these recommendations will have a positive impact on our path toward NextGen. We will continue to engage with FAA and other industry stakeholders to achieve success in the near-term but also to ensure deployment of a transformed Next Generational air transportation system.

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[10] FAA September 22, 2009 Press Release: New System Improves Safety in Remote Regions
[11] SESAR is the European Union's 'Single European Sky' ATM Research program which is aimed at eliminating the current fragmented approach to European ATM.

Success in this area is critical to manufacturers. As more products are certified and approved for operational use, our ability to compete is enhanced. This will have a direct, positive impact on economic growth and jobs.

Mr. Chairman, thank you for your leadership on this issue and for inviting me to testify before the subcommittee. As we continue to implement technologies that build capacity and efficiency in the NAS, there are challenges ahead for us on the modernization front. The RTCA Task Force identifies several solutions and provides near-term focus. We must also challenge ourselves to work together to implement the longer terms NextGen concept of operations.

Thank you and I would be glad to answer any question that you may have.
